



## The Dye Boosting Scaleton from Fluid Dynamics



Adding DOLLARS (\$) to the bottom line with the reduction of dye usage in the coloring process





**Fluid Dynamics**

Hard water solutions since 1973

## Who we are

Fluid Dynamics, headquartered in England has been in business since 1973. Fluid Dynamics is the world's oldest catalytic water treatment company with 100's of thousands of units installed world wide.

With an unmatched pedigree in the field of hard water scale prevention, Fluid Dynamics has built an impressive archive of case studies that are available upon request.



## Our client list includes:

Travel Centers of America

Bush Beans

Hobart

Briggs Industries

Cambridge University

Coca Cola

Ford

Giant Foods

Guinness

Honda

Perdue Chicken

Kellogg's

Kimberly Clark

Marks & Spencer's

McArthur Dairy

Nestle

NGK

Pfizer

Renault

Unilever

Walmart

Westfalia

US Army

US Navy

and many more





## What can you save ?

Certified Lab tests showed that using water treated with our Dye Boosting Scaletron caused a 10% - 20% reduction in the amount of dye needed in the process of coloring mulch.



**SAVE on Every Yard of Mulch**





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## Easy to Install

The Dye Boosting Scaleton is not a big expensive machine that requires daily maintenance or an engineer to install.

It is a device that threads or bolts directly into your water supply line.

It requires no electricity, no maintenance and is available in a variety of sizes one of which will match your system.





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## Cost Savings while Maintaining Production Rates





## Benefits of a Dye Booster system

- Reduces the amount of chemical, dye or additive required for your process
- Easy installation
- Fit and forget
- Environmentally friendly
- No contaminated waste water
- Uses no electricity
- Uses no chemicals
- Uses no salts

## Quality/Warranty

Our catalytic cores are made of a special alloy, the core is housed in high quality stainless steel and each unit comes with a 5 year replacement warranty.

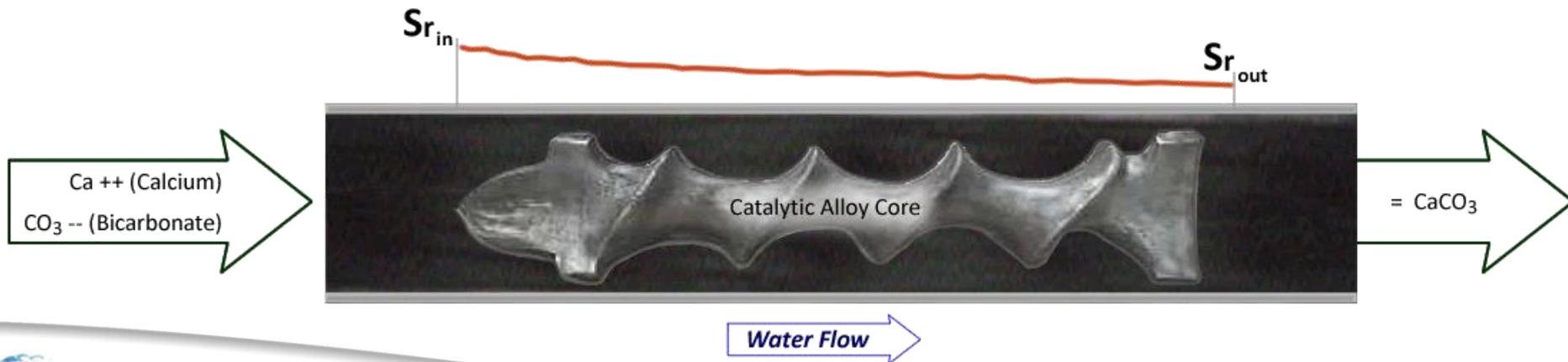




## So how does the Fluid Dynamics Catalytic process work?

- Fluid Dynamics' catalytic product uses a non-sacrificial stable alloy with a special surface to create a reaction as water passes over it.
- The reaction causes carbonic acid to precipitate increasing the pH of the water.
- This pH increase triggers calcium to come out of solution and form a colloidal suspension with the carbonate (CaCO<sub>3</sub> that has taken a different crystal form).
- Catalytic treated water has an increased capacity to hold calcium and carbon in solution. This increased capacity prevents scale formation and in some cases absorbs existing scale.
- **The catalytic treatment also positively impacts the solutions ability to disperse dye more efficiently**

### The saturation ratio (Sr) decrease is initiated by the catalytic reaction





## Study and Comparative Test

### Effects of Dye Booster Treatment on Commercial Coloration of Mulch

By: Lynn P Griffith 04/01/10

#### **ABSTRACT:**

A commercial mulch cypress blend was colored using the same rate of commercial red mulch dye, with normal untreated well water, and with the same water using the Dye Boosting Scaleton. Mulch dyed with the Scaleton was 20% darker in red color than the mulch colored with untreated water. After 30 days, the color difference was still visible, despite substantial rainfall.

#### **MATERIALS AND METHODS:**

Two bags of uncolored cypress blend mulch were purchased from the same pallet from a retail garden center. The bags were carefully matched to ensure they contained the same quantity of mulch, and similar moisture levels, as moisture level in the mulch can affect dye rates and efficiency. The mulch was of average moisture, slightly moist, but not overly wet nor overly dry, what you would typical find in a retail bag of mulch. A sample of liquid red mulch dye was obtained.

The well water used in the study was typical well water for southern Florida. The water pH runs about 7.5, with about 280 parts per million bicarbonates. No visible iron staining occurred with this water, and it is low in salinity, approximately 23 PPM sodium. The water is low in salinity, but relatively hard and alkaline, typical for the area.

One complete bag of mulch was dyed with untreated water, using 1.6 tablespoons of dye per gallon of water per 1.8 cubic feet of mulch. The volume of each bag of mulch was measured using a specially constructed measuring box for that purpose. The second bag of mulch was dyed in exactly the same fashion, except that the water passed through a one inch PVC pipe with a 3/4 inch Scaleton inline.

Each bag of mulch was placed in a wheelbarrow and one gallon of the mulch solution was added. The mulch and dye were blended by hand in a uniform fashion by the same person. After dyeing, each bag of mulch was placed in plastic nursery flats, measuring approximately 20 inches by 20 inches. There were two flats for each bag of mulch, for a total of four flats.





## Results and Discussion:

It was immediately apparent that the mulch dyed using the Dye Boosting Scaleton water was significantly and obviously darker than mulch dyed in the same fashion with untreated water. Two horticultural professionals observed both dyed mulches, and concluded that the Scaleton mulch was 20% darker than the untreated control. The flats of mulch were placed on bare ground in full sun. The color difference was clearly evident from 50 to 60 feet away.

After 30 days, both Scaleton flats of mulch were clearly darker in red color than the untreated controls. Significant rainfall had occurred during the 30 day period, including one 8 inch rainfall about two weeks after dyeing the mulch.

Using Scaleton treated water to dye mulch clearly improves the coloration effect of the dye, and will result in a reduced quantity of dye needed to color mulch. Use of the Scaleton should result in a 10 to 20% reduction in dye usage for red colored, cypress-blend mulches.

*Lynn P Griffith studied chemistry and biology at Duke University, and has been with A & L Southern Agricultural Laboratories, LLC since 1980. He has written close to 200 articles on agriculture and horticulture for numerous trade magazines. He has published three books on commercial production of ornamental plants. In addition to testing and consulting, he has provided numerous contract research studies for a wide variety of companies.*

*A & L Southern has been providing agricultural testing and consulting services to a wide range of clients since 1949. They currently have approximately 9,000 customers in about 50 countries around the world. A & L Southern has a staff of chemists, horticulturists, a pathologist and nematologist, as well as clerical, bookkeeping and management staff. The company offers testing of soil, plants, water, fertilizer, lime, pathology and nematology, as well as agricultural and horticultural consultation.*





## On Site Test with Results:

TEST 1:		WITHOUT FILTER		Pump Setting	900
BUCKETS	8.00	WT TEST			
TOTAL WEIGHT	40,800				
YARDS PUT IN	110.42	369.5	COLORANT		
YARDS PRODUCED	107.11	LBS/YD	BEGINNING WEIGHT	4,035	
LBS PER YARD	2.94	GROUND PINE	ENDING WEIGHT	3,720	
			DIFFERENCE	315.00	100%
TEST 2:		WITH FILTER		Pump Setting	850
BUCKETS	8.00	WT TEST			
TOTAL WEIGHT	41,360				
YARDS PUT IN	111.94	369.5	COLORANT		
YARDS PRODUCED	108.58	LBS/YD	BEGINNING WEIGHT	3,720	% CHANGE
LBS PER YARD	2.78	GROUND PINE	ENDING WEIGHT	3,418	IN LBS USED
			DIFFERENCE	302.00	-4%
TEST 3:		WITH FILTER		Pump Setting	800
BUCKETS	8.00	WT TEST			
TOTAL WEIGHT	41,720				
YARDS PUT IN	112.91	369.5	COLORANT		
YARDS PRODUCED	109.52	LBS/YD	BEGINNING WEIGHT	3,418	Change
LBS PER YARD	2.45	GROUND PINE	ENDING WEIGHT	3,150	from Test 5
			DIFFERENCE	268.00	-6%
				-15%	

Tests 4 and 5 follow...





## On Site Test with Results (continued):

TEST 4:		WITH FILTER		Pump Setting	750
BUCKETS	8.00	WT			
TOTAL WEIGHT	40,780	TEST			
YARDS PUT IN	110.37	369.5	COLORANT		
YARDS PRODUCED	107.05	LBS/YD	BEGINNING WEIGHT	3,150	
LBS PER YARD	2.24	GROUND	ENDING WEIGHT	2,910	
		PINE	DIFFERENCE	240.00	-24%
TEST 5		WITHOUT FILTER		Pump Setting	800
BUCKETS	8.00	WT			
AVG. WEIGHT	42,030	TEST			
YARDS PUT IN	113.75	369.5	COLORANT		
YARDS PRODUCED	110.34	LBS/YD	BEGINNING WEIGHT	2,799	
LBS PER YARD	2.59	GROUND	ENDING WEIGHT	2,513	
		PINE	DIFFERENCE	286.00	-5%





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## Summary:

Fluid Dynamics offers a proven product with independently confirmed results that can easily add thousands of dollars a month to your bottom line.

The wise saying, "it's not what you make, it's what you save that counts" is exactly what we can help you with. We can easily calculate your savings, so make the decision to start saving today!



Technology Backed by Science, Endorsed by Industry™

